

**CRYSTALLIZABLE GLASS AND THE USE THEREOF FOR PRODUCING
EXTREMELY RIGID AND BREAK-RESISTANT GLASS CERAMICS
HAVING AN EASILY POLISHED SURFACE**

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C L A I M S

1. Crystallizable glass of magnesium-containing aluminosilicate type for producing highly rigid, break-resistant glass ceramics with a modulus of elasticity of > 110 GPa, characterized in that it contains
 - 10 5 - 33 wt.% of SiO₂
 - 25 - 40 wt.% of Al₂O₃
 - 5 - 25 wt.% of MgO
 - 0 - 15 wt.% of B₂O₃
 - 15 0.1 - 30 wt.% of Y₂O₃, Ln₂O₃, As₂O₃ and/or Nb₂O₅
 - 0.1 - 10 wt.% of P₂O₅.
2. Glass according to claim 1, characterized in that it has an alkali content of < 2 wt.%.
- 20 3. Glass according to one of the preceding claims, characterized in that it contains transition metal oxides in a maximum amount of 10 wt.%.
4. Glass according to claim 3, characterized in that the transition metal oxides are MnO₂, Fe₂O₃, NiO, CoO, Cr₂O₃, V₂O₅, MoO₃ or WO₃.
- 25 5. Glass according to one of the preceding claims, characterized in that it contains 0 - 5 wt.% of CaO, 0 - 5 wt.% of SrO and/or 0 - 5 wt.% of BaO.
6. Glass according to one of the preceding claims, characterized in that it contains
 - 30 0 - 12 wt.% of TiO₂, 0 - 10 wt.% of ZrO₂ and/or 0 - 20 wt.% of ZnO.

7. Glass according to one of the preceding claims obtainable by annealing at a temperature that is 5 - 50 °C above the Tg for two minutes to one hour.
- 5 8. Glass ceramic obtainable by heating a glass according to one of claims 1 - 7.
9. Use of the glasses according to one of claims 1 - 7 for producing a glass ceramic.
10. Use according to claim 9, characterized in that the glass is heated in accordance with holding curves determined by differential thermal analysis until the crystalline phases have precipitated.
- 15 11. Use according to claim 9 or 10, characterized in that to form primary nuclei the glass is heated for at least 30 minutes at a first nucleation temperature and then for at least 30 minutes at a second, main crystallization temperature at which on the primary nuclei there are formed crystal phases of the spinel, sapphirine and/or cordierite classes and that optionally, to form crystal phases of the xenotime (YPO_4), yttrium pyrosilicate ($\text{Y}_2\text{Si}_2\text{O}_7$), yttrypyrochlore ($\text{Y}_2\text{Ti}_2\text{O}_7$) and/or rutile (TiO_2) classes, the material is heated at a higher temperature for at least 0.5 hour.
- 20 12. Use according to claims 9 - 11 to prepare magnetic storage disks, magneto-optical storage devices and mirror carriers.